

A Unified Account of Locality Constraints for Clitic Climbing and Long Scrambling*

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1 Introduction

Clitic climbing (CC) in Spanish and Long Distance Scrambling (LDS) in German have certain similarities, leading to analyses (e.g., Sabel 1995, Wurmbrand 1998) that treat them in a similar way. However, they differ in restrictions placed on the movement of the clitics or scrambled NPs in cases of multiple clitics or NPs in one sentence, appearing to follow different constraints on inter-clausal movement (Aissen and Perlmutter 1983, Sabel 1995).

We present an analysis of CC and LDS in the framework of a variant of Tree Adjoining Grammar (TAG) (Frank and Kroch 1995). TAG is a system of generalized transformations used to compose phrase structure. By factoring recursion out from the statement of the grammar, it forces the substantive theory of syntax to be localized to small domains of phrase structure called *elementary trees*. Therefore, constraints on interclausal movement such as the minimal link condition cannot be stated, and the claim of TAG is that such constraints do not need to be stated, since they follow from the specification of the elementary trees and the working of the TAG formalism.

The problem that this paper explores is: how can TAG explain the differences between clitic climbing and long scrambling, if such interclausal constraints cannot be stated? We argue that the differences are shown to follow from a difference in the representations of clitics and scrambled NPs within an elementary tree. There is no need to stipulate that the two cases follow different interclausal movement constraints.

2 Data

2.1 Clitic Climbing in Spanish

Object clitic placement is usually a clause-bound operation, in which the clitic appears on the verb with which it is associated (or on an auxiliary verb in the same clause). As shown in (1), the clitic does not in this case appear on the

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higher verb, but must appear on the verb it is semantically associated with, in this case *comer*.

- (1) a. Luis insistió en comerlas
 Luis insisted on eating them
 b. *Luis *las* insistió en comer

This is the 'typical' case. However, with a limited number of verbs, the clitic can optionally appear on that higher verb, as it does with *quiere* in (2b). This is commonly referred to as "clitic climbing", since the clitic appears to climb to a higher clause.¹ I will follow Aissen and Perlmutter (1983) in referring to the verbs that allow such movement of the lower clitic to them, such as *quiere*, as the "trigger" verbs.

- (2) a. Luis quiere comerlas
 b. Luis *las* quiere comer
 Luis wants to eat them

The puzzle of sentences such as (2b) is, of course, is that the normal locality constraint on clitic placement, as in (1), seems to be violated. There are also some object-control verbs that can act as trigger verbs, at least for some speakers of Spanish, such as *permitir* in (3).

- (3) a. Juan *me* permitieron comprarlo
 Juan allowed me to buy it
 b. Juan *melo* permitieron comprar

2.2 Long Distance Scrambling in German

A similar type of movement takes place in German, with NPs scrambling to a higher clause. German scrambling, like Spanish clitic placement, is usually clause-bound. However, with the "trigger verbs" for German, an NP can appear in a higher clause, such as *Kühlschrank* in (4b).

- (4) a. ...daß niemand [PRO den Kühlschrank zu reparieren]
 ...that no-one the refrigerator to repair
 versprochen hat
 promised has

¹The clitic appears after a nonfinite verb, and before a finite verb.

- b. ...daß [den Kühlschrank] niemand [PRO zu reparieren]
 ...that [the refrigerator] no-one to repair
 versprochen hat
 promised has
 ...that no-one has promised to repair the refrigerator

2.3 'Intersecting Clitic Climbing' is Not Possible

Aissen and Perlmutter (1983) pointed out restrictions on clitic climbing when a sentence has two trigger verbs, here *quiere* and *permitir*, each with a clitic (*te* and *lo* respectively).

- (5) a. Mari quiere permitirte verlo
 Mari wants to permit you to see it
 'Mari wants to permit you to see it'
 b. Mari telo quiere permitir ver
 c. * Mari te quiere permitirlo ver

It is possible for neither clitic to move (5a), and for both clitics to move to the highest clause (5b). The unacceptable sentence (5c) is an example of what Aissen and Perlmutter (1983) called "intersecting clitic climbing", in which the clitic from the lowest clause (*lo*) climbs to the middle clause, and the clitic from the middle clause (*te*), moves to the higher clause.²

2.4 'Intersecting Long Scrambling' is Possible

Analogous cases for German long distance scrambling (LDS) are (6abc). Some caution about the data is in order. Unlike the previous case of long scrambling (4b), here the complement clause is extraposed instead of center-embedded. We are therefore treating (6bc) as cases of scrambling from an extraposed clause, a not-uncontroversial assumption. The reason we are using the extraposed cases is that with multiple NPs moving through multiple center-embedded clauses, it becomes harder to determine exactly which clause a NP is in. Although scrambling from an extraposed clause may not be the same as

²Space prevents showing the full paradigm of locality constraints, but it's basically the case that while the clitics can move individually, once they are reach the same clause, they are 'stuck together' for further movement. Therefore, it's also not possible for clitics to climb over one another.

scrambling from a center-embedded clause, we are making the assumption in this paper that they are the same phenomenon.³

Given that, the crucial point is that the relative acceptability of (6c) shows that German LDS does not reflect the same constraint on 'intersecting' movement as clitic climbing does. Again, the data is not as perfect as one would hope.⁴ Some speakers find that (6c) is acceptable, although hardly perfect, while others find it out completely. However, this is in stark contrast to the Spanish case (5c), for which there seems to be strong agreement among speakers who accept (5b) that (5c) is completely out. Therefore we proceed with the view that there is a real contrast between the Spanish and German 'intersecting' clitic climbing/long scrambling (i.e., between (5c) and (6c)).

- (6) a. daß keiner wagte [[dem Fritz] zu erlauben [[den
that nobody dared [[the Fritz]_{DAT} to allow [[the
Wagen] zu reparieren]]
car]_{ACC} to repair]]
'that nobody dared to allow Fritz to fix the car'
b. daß [dem Fritz]_i [den Wagen]_j keiner wagte [t_i zu erlauben [t_j zu reparieren]]
c. ? daß [dem Fritz]_i keiner wagte [[den Wagen]_j t_i zu erlauben [t_j zu reparieren]]

3 Tree Adjoining Grammar

TAG is a constrained grammatical formalism that provides a system of phrase structure composition in which the specification of grammatical constraints is separated from the recursive processes in the grammar. This is accomplished by localizing the grammatical constraints within small pieces of phrase structure, called *elementary trees*, which are combined using the operation of *adjoining*. (For those familiar with TAG, this is a modified form of adjoining.)

As shown in Figure 1, adjoining composes two elementary trees ((A) and (B)) by inserting a recursive subtree (6) from one tree into another and unifying the supertrees consisting of the higher projections ((1) and (4)). Trees which have such a recursive subtree are called *auxiliary trees*, and have a *foot* node along the frontier (here Y) which is of the same category as the root node of the recursive subtree. If there are any additional segments in either tree of the

³Examples (6ab) are actually taken from Sabel (1995), who also uses these sentences in a discussion of "scrambling".

⁴Depending on one's analysis, of course.

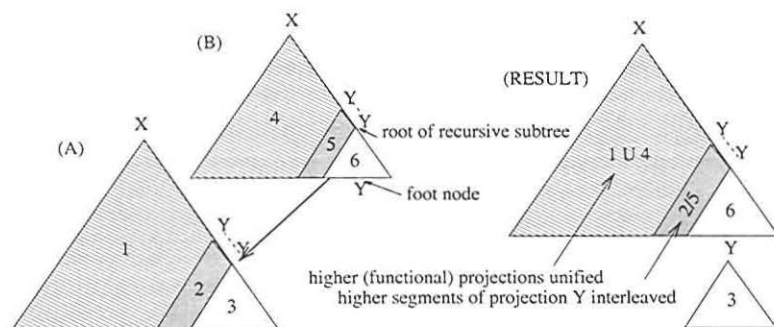


Figure 1: Adjoining in TAG

same projection (Y) which is being inserted as a recursive structure, they can be interleaved with each other.

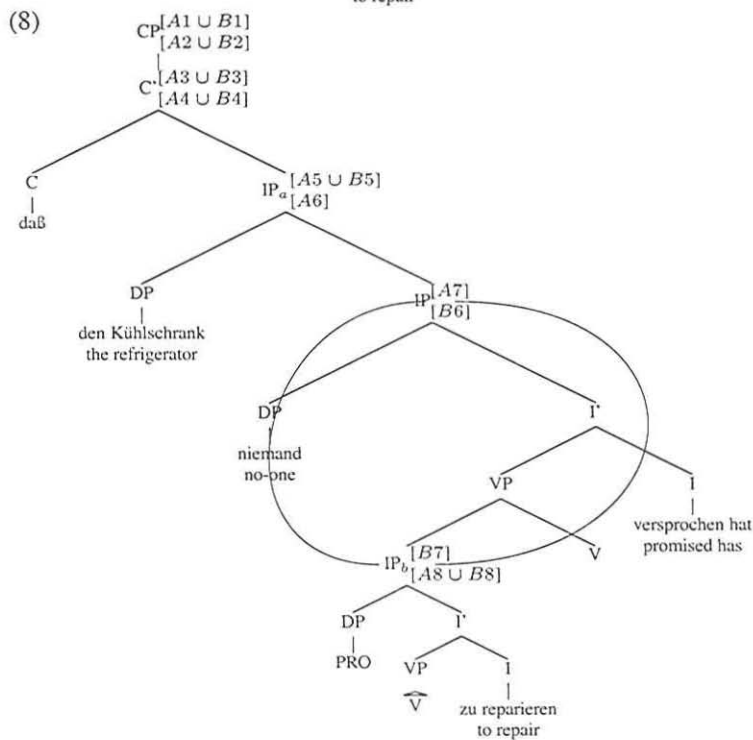
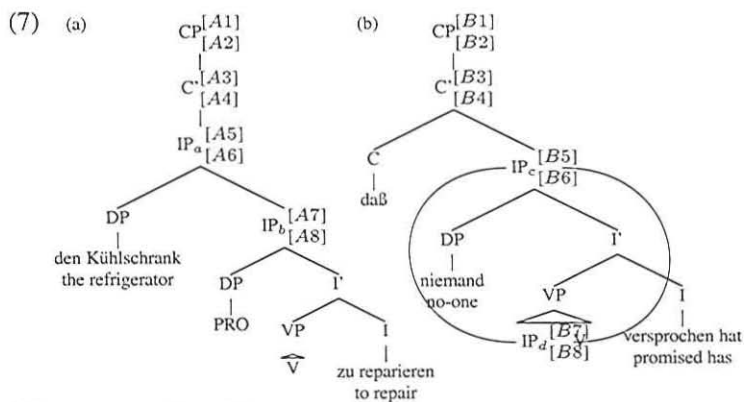
There is no 'movement' across clauses—all movement is internal to an elementary tree, and the appearance of interclausal movement results by parts of a tree getting stretched away from the rest of the tree. Thus, the hypothesis is enforced that the substantive theory of syntax is localized to the domain of the elementary trees. A basic assumption used in TAG work is that thematically related items are in the same tree, such as a verb and its arguments. Also, a feature system is used with TAG in which each node has a top and bottom feature associated with it. Further examples will illustrate how these feature values interact with the adjoining process.

3.1 Long Scrambling in TAG: Simple Case

We illustrate the basic mechanics of a derivation in TAG with the case of long scrambling (4b). We treat the scrambled NPs as additional IP segments in an elementary tree (e.g., *Kühlschrank* in (7a)). Also, following a great deal of research that treats trigger verbs as taking a 'defective complement' when long scrambling (or clitic climbing) occurs (e.g., Strozer 1977, Moore 1991, Blead 1994, Wurmbrand 1998), we treat the German trigger verbs as taking an IP complement.⁵

Sentence (4b) is derived by adjoining (7b) (with IP_{cd} the recursive subtree) into (7a) at IP_b , with the top CP projections unifying. The recursive

⁵They can also take a larger complement, in which case no clitic climbing occurs, although we do not illustrate that here for space reasons.

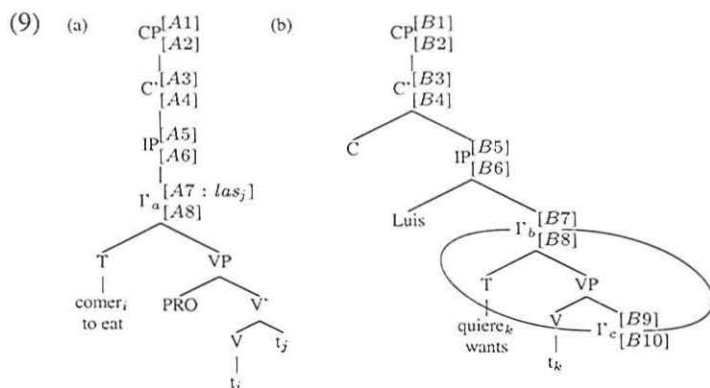


subtree IP_{cd} is circled in (7b) and it is circled in the result (8) to show how *den Kühlschrank* is stretched apart from *PRO zu reparieren*.

An important aspect of a TAG derivation is that each step of the derivation is specified between only two elementary trees. When a derivation consists of more than two steps, in which tree X adjoins into tree Y, which adjoins into tree Z, nodes from tree X can not be explicitly referenced after the first step of the derivation, namely after X has adjoined into Y. While the components of X that have been inserted into Y may be 'carried along' by the inductive nature of the definition of a TAG derivation (which for space reasons we cannot describe here further), the nodes can no longer be explicitly referenced. In this case, the nodes specifying the recursive subtree in (7b), IP_c and IP_d , lose their identifying labels in the result (8).

3.2 Clitic Climbing in TAG: Simple Case

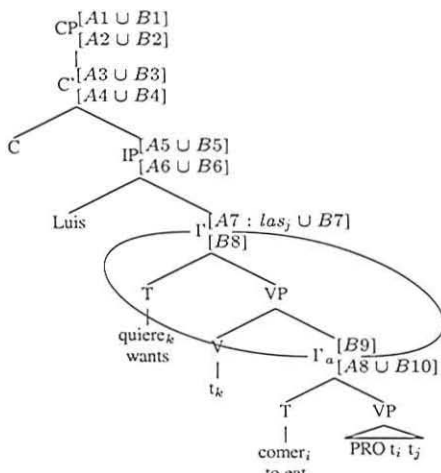
In contrast to the scrambled NPs, we treat clitics as features, following such work as (Monachesi 1995, Miller and Sag 1997). In the TAG context, they are integrated as part of the feature system for TAG, and are located as top features of the I' node. We assume that the Spanish trigger verbs take an an I' complement when clitic climbing occurs.



Tree (9a) is the tree for *comer* in the derivation of (2b). The tree (9b) is used for *quiere* when clitic climbing occurs, with *quiere* taking an I' complement. Sentence (2b) is derived by adjoining (9b) (with I'_{bc} the recursive subtree) into (9a) at I'_a , with the higher CP and IP projections unifying. The result is (10), with the clitic feature stretched away from the rest of the *comer* tree (the two features of the I'_a having been separated by the insertion of I'_{bc}).

and so with *las* appearing on the higher verb.⁶

(10)



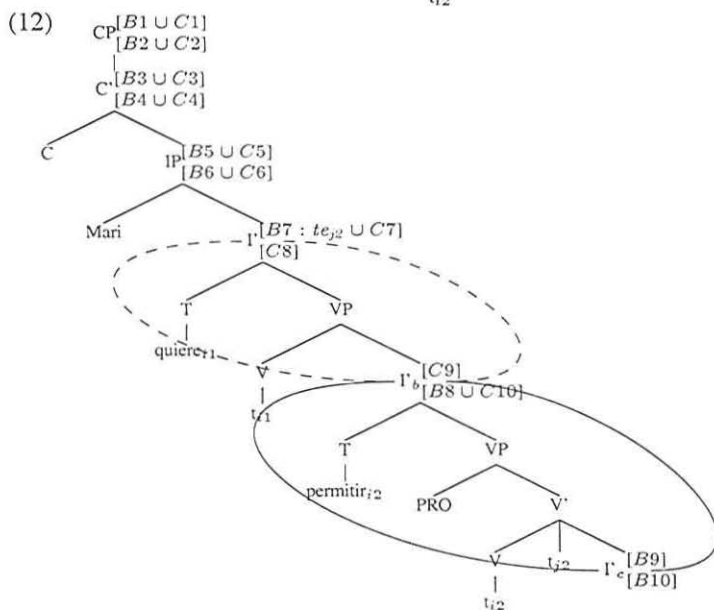
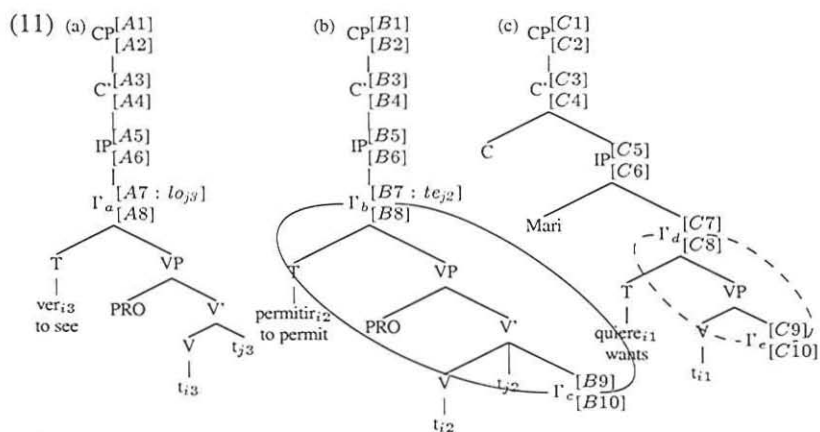
4 Intersecting Clitic Climbing Cannot Be Derived

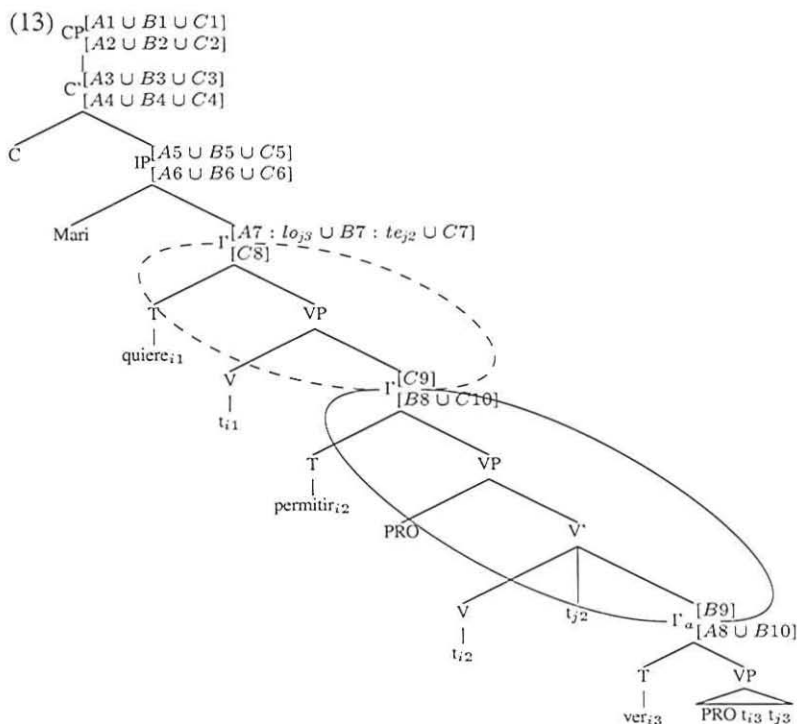
We now return to the case of ‘intersecting clitic climbing’, (5c), and how its derivation is prevented. First consider the derivation of the acceptable (5b). Both *quiere* and *permitir* are acting as trigger verbs, and so both must take I’ complements, as in (11bc). Tree (11c) with recursive subtree I’_{de} adjoins into (11b) at I’_b, resulting in (12). This shows *te* to have climbed from the *permitir* clause to the *quiere* clause. Tree (12), with recursive subtree I’_{bc} adjoins into (11a) at I’_a.⁷ The recursive subtree originally from (11c) is carried along, here meaning that the subtree I’_{de} remains attached to I’_b. The result is (13), showing that both clitics have ‘climbed’ to the *quiere* clause.

Given the trees in (11), there is no other option for the derivation. For (5c), both *quiere* and *permitir* are also allowing clitic climbing, and so again the trees in (11abc) are used. But since these trees can only derive (5b), the ‘intersecting clitic climbing’ case (5c) is not derived.

⁶We are assuming that a clitic at an I’ node appears on the I node child.

⁷Technically, as mentioned before, this step of the derivation is actually specified between (11b) and (11a), with the recursive subtree from (11c) used during the first step of the derivation getting carried along.





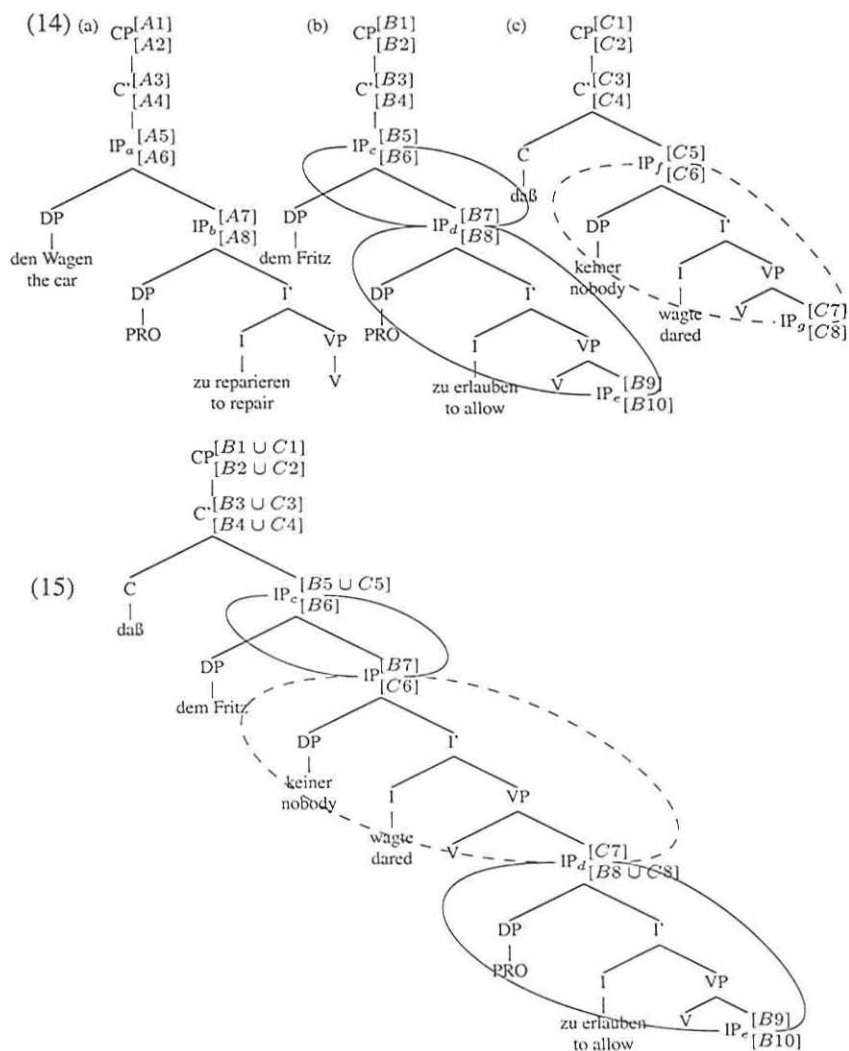
5 Intersecting Long Scrambling Can Be Derived

For (6b), both *wagte* and *erlauben* are acting as trigger verbs. Therefore both must take IP complements, as in (14bc).

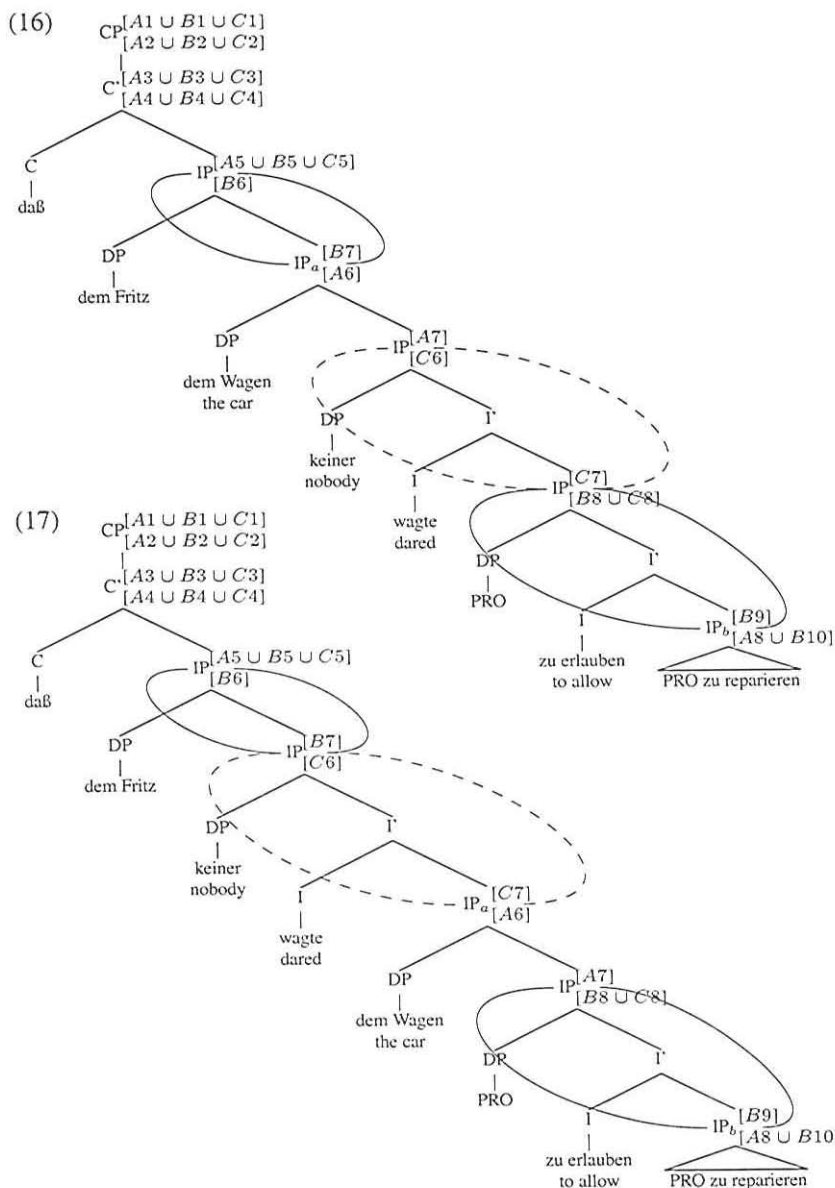
Tree (14c) with recursive subtree I'_{fg} adjoins into (14b) at IP_d , resulting in (15). This shows *dem Fritz* to have climbed from the *erlauben* clause to the *wagte* clause.

Tree (15), with the recursive subtree IP_{de} , adjoins into (14a) at IP_b . However, this is a case in which there are extra IP segments in both trees. The IP_c segment is inserted at IP_a , moving *dem Fritz* above *den Wagen*. As before, the recursive subtree that had been inserted in the first step, (IP_{fg}) is 'carried along'. However, in this case, unlike with clitic climbing, it can be carried along with either the IP_c segment or the IP_{de} subtree.

If it is carried along with the IP_{de} subtree, the result is (16), deriving (6b), with both NPs scrambled to the highest clause. If it is carried along with the IP_c segment, then the result is (17), deriving the intersecting long scrambling case (6c). This was not possible for intersecting clitic climbing, since there



(Note on trees (14bc): For these trees we have flipped the direction of the verb and its sentential complement, to allow extraposed complements, as compared to (7b). This is done due to our assumption that the same possibility occurs with center-embedded long scrambling, although the data is harder to obtain. The center-embedded case would be a simple change to the trees (14abc) with no change to the derivation structure.)



was no extra segment that allowed the recursive subtree from the first clause to be carried along in the second step of the derivation in two different ways.

6 Conclusion

We have addressed the issue of how the differing restrictions of interclausal movement in clitic climbing and long scrambling can be handled in a formalism which does not allow for the statement of interclausal constraints.

The derivation of the long scrambling cases has a flexibility that the derivation of the clitic climbing cases does not have. This is due to the representation of scrambled NPs as IP segments. In this way the different interclausal movement constraints for clitics and scrambled NPs are related to their morphological status.

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